

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

Pioneer F Readied for Jupiter Mission

One of the most challenging missions for a NASA spacecraft will begin in late February 1972 when the Ames-managed Pioneer F is launched from Cape Kennedy on an historic 650-day trip to Jupiter.

To reach the orbit of Jupiter, the spacecraft must travel farther than any mission man has sent into space, and must survive the unknown hazards of the asteroid belt. A primary mission objective is to investigate the potential hazards to the spacecraft from this asteroid belt material and the radiation damage from Jupiter.

Pioneer is a spin stabilized vehicle which will serve as a scan platform for eleven on-board experiments and two associated Earth-based experiments.

The spacecraft is scheduled to fly within 100,000 miles of the giant planet which is 380 million miles from Earth. The encounter with Jupiter occurs almost half a billion miles from the Sun -- five times farther away from the Sun than the Earth's orbit. Pioneer must carry its own independent power supply -- the first spacecraft to be wholly dependent on a power source of four radioisotope thermoelectric generators (RTG), to supply 120 watts of electrical power.

FINAL WEEKS

In these final weeks before launch the experiments and communications links are undergoing extensive tests and the spacecraft itself is being readied for transfer to Cape Kennedy. The Pioneer Project people are moving from one strategic operation to another and after the holidays only a skeleton crew will be left here at the Center as the teams fan out to communications and launch sites.

The Spacecraft Manager, Ralph W. Holtzclaw, talked recently about the forthcoming activities at the Cape. "The present schedule," he said, "calls for the number one test set to be shipped to the Cape the first week in January. Robert L. Edens of the Spacecraft group will be on hand to help set it up before the arrival of Pioneer F which will be flown from Los Angeles in mid-January. The 550-pound spacecraft will be transported in a Mini Guppy aircraft which will land on the Skid

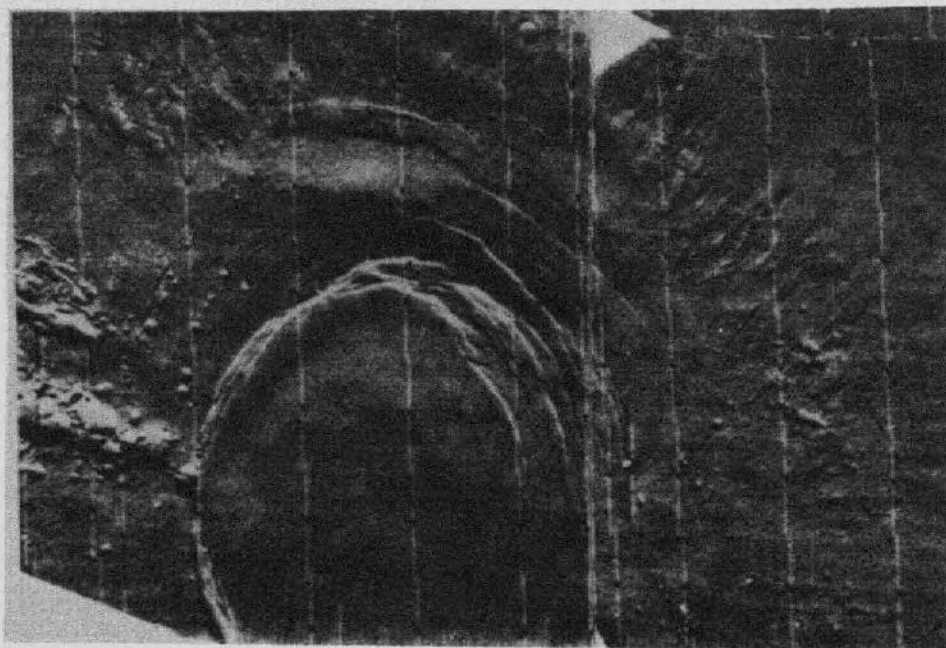
Strip just a few miles from the launch site."

When Pioneer arrives at the Cape there will be a sizeable contingent from Ames already there. Beside Mr. Holtzclaw and Mr. Edens, the Project Office staff members will include George J. Nothwang; the Ames plant representatives at TRW Robert S. Gittleson and George C. James; Experiments Manager Joseph E. Lepetich, David B. Sinnott, Alvin J. Wilhelmi, and the plant representatives Robert P. Hogan and Richard J. Twarowski; Launch Vehicle and Operations Manager Robert U. Hofstetter and Benny Chin. Supervising RTG power device activities will be Arthur C. Wilbur, Chief of the Vehicle Systems Design Branch, and Robert E. Corridan of the same branch.

The first testing of the integrated communication control system for the deep space network and total mission operations started last week. The groups operating this phase of the mission will be reported in a later issue of "The Astrogram."

The Pioneer Project is managed by Charles F. Hall under the Director of Development John V. Foster.

Prime contractor for the spacecraft is TRW Systems Group.



MARTIAN CRATER . . . This seventy-mile diameter Martian crater near Nordus Gordii (the Gordon Knot) was photographed by Mariner 9 on November 28. The crater and its immediate surroundings are high ground, emerging island-like from a sea of wind-blown dust. The multiple concentric fractures on the western rim and the abundant rimless craterlets suggest that this is a caldera or volcanic collapse crater, one equal in size to the largest on Earth or Moon.

NASA Seeks New Uses for Technology

NASA has recently requested proposals for using space-related technology in solving domestic problems in the public sector.

The suggestions are to be ones

which would use NASA-developed technology in four specific public sector areas: air pollution, water pollution, solid waste management, and clinical medicine.

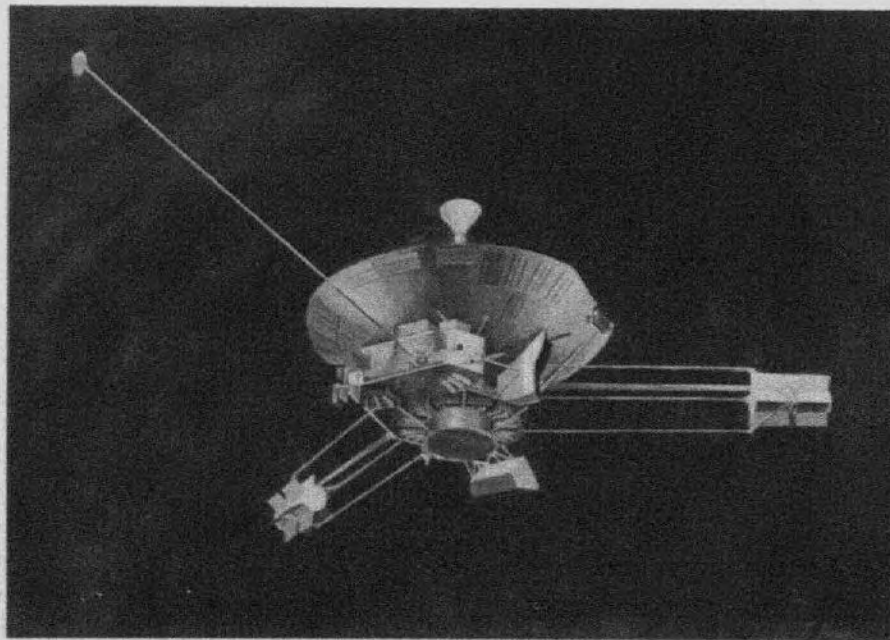
Three NASA centers, including Ames, are designated to receive proposals, to be reviewed by a team of experts in each of the four technology areas.

Suggestions concerning air pollution are to be sent to Glen Goodwin, Director of Astronautics at Ames. Ideas on technology application to the problems of water pollution and solid waste management, are to be sent to John Samos at Langley Research Center; and Dr. S. R. Pool of Manned Spacecraft Center is receiving proposals on technology application in the field of clinical medicine.

Responses are to be submitted by the close of business December 15.

After the review teams have completed their work, one or more projects in each of the four subject areas may be selected for negotiations and award of a contract in an amount not to exceed \$75,000.

Only technical suggestions or proposals identified with NASA-related research and development will be considered.



PIONEER F SPACECRAFT . . . pictured in this artist's concept, is being prepared for the Jupiter mission to extend studies of interplanetary phenomena. Instruments behind the big antenna reflector will be used for research throughout much of the flight. Scheduled for launch about February 27, 1972, the Ames-managed 550-pound spacecraft must travel farther and faster than any mission man has sent into space to reach the orbit of Jupiter. The 650-day trip will also subject the spacecraft to the unknown hazards of the asteroid belt. The launch vehicle will be the Atlas/Centaur.

Final Report of Ames CFC

The final report of the Ames 1972 Combined Federal Campaign has been compiled and according to CFC Chairman Robert L. Pike, 73 percent of the employees participated in this annual effort in support of the United Fund Human Care Service, the National Health Agencies and the International Service Agencies.

The average gift per employee was \$29.19, an increase of \$2 over last year. The total amount donated by Ames employees was \$38,904.

NASA Computers Aid Auto Industry

A computer program developed by the National Aeronautics and Space Administration is playing a substantial part in the design of new models of light trucks and passenger cars.

NASTRAN (NASA's Structural Analysis Computer Program), a NASA-developed general purpose digital computer program originally designed to analyze the behavior of elastic structures in the space program, is being used by the Ford Motor Company in predicting the performance of steering linkages and other components of its 1973 line of light trucks.

By incorporating NASTRAN predictions into its design process, Ford's Advanced Analytical Technology Department reported a 60 percent improvement in predicting the behavior of components under stress and a time-saving of two-thirds in achieving such calculations.

Design engineers predict the computer program will be particularly effective in solving design problems related to the reduction of high speed vibrations and in facilitating the design of various suspension components. Other potential applications are anticipated in the design of gas turbine engines.

Ford is now building a complete dynamic "model" of the automobile on the computer with the NASTRAN program's assistance. The company has not previously had the analytical tools for constructing a model of this magnitude.

NASTRAN, originally developed at a cost of \$3 million, and several hundred other computer programs developed for use in the space program are made publicly available to any U.S. user as part of the NASA Technology Utilization Program for the nominal cost of evaluation, processing and distribution.



EEO LEADERS . . . from NASA and Ames met recently with the Director, Dr. Hans Mark (second from right), to discuss the Center's Affirmative Action Plan and the equal employment opportunity program. Shown here are (l to r) Robert E. King, Director of the Industrial Relations Office, NASA Headquarters; Willie L. White, Jr., Chairman of the Ames EEO Committee of Counselors; Mrs. Dorothy M. Evans, Federal Women's Program Coordinator for Ames; Mrs. Ruth Bates Harris, NASA Director of Equal Employment Opportunity; and Robert L. Pike, Ames EEO Officer. During the day-long visit Mrs. Harris and Mr. King toured several facilities and talked with members of the EEO Committee of Counselors and the staff of the Contract Compliance Office.

TU Booklet Helps USCS Summer Job Test Dates Set

New aerospace technology suitable for profitable adaptation by small industrial firms is summarized in a publication announced last week by NASA and the Small Business Administration.

Offered to business jointly by the two federal agencies without charge, the new publication titled "Testing Methods and Techniques" contains 34 abstracts of innovative processes and devices used in quality control and nondestructive testing, with emphasis on physical inspection and internal flaw detection.

The booklet prepared by NASA and the SBA is designed to help small manufacturers, research and development firms and testing and industrial laboratories to share in the benefits of government-supported research.

Officials of the two agencies said use of the new technology should assist in the growth of small firms through the use of new and improved materials, equipment and processing methods. It should promote lower costs, improved profits, greater competition and the development of new products.

The booklet is one of several in a variety of research fields being prepared for future release by NASA and SBA.

The NASA Headquarters Technol-

ogy Utilization Office identifies technology developed by NASA and arranges its prompt application.

Both NASA and the SBA have established facilities for extending technical help to businesses and other organizations in identifying existing aerospace technology and adapting it for business or public use outside the space program.

Information on the new booklet may be obtained from the Technology Utilization Office at Ames.

Films of Ames on TV Dec. 12

The national television program "Make a Wish" scheduled for airing on Channels 7, 11, and 13, Sunday December 12, at 11:30 a.m., will feature film shot by an ABC camera crew at Ames.

"Make a Wish" is an educational children's program which is shown on the ABC television network Sunday mornings. Each show is built around a one-word theme. The theme word for the December 12 show is "Wires" and the program will feature the role played by "wires" in the research programs underway at the Center. Most of the footage depicts Ames' simulators.

NASA Space Group in Moscow

A meeting of the Joint Working Groups of the USSR Academy of Sciences and NASA on the development of compatible space rendezvous and docking systems was held in Moscow from Nov. 29-Dec. 7.

NASA representatives headed by Dr. Robert R. Gilruth, Director of the Manned Spacecraft Center, met with a Soviet group under the leadership of Academician B.N. Petrov to continue joint efforts called for by the NASA/Academy of Sciences agreement of October 28, 1970.

At a previous meeting in Houston, June 21-25, 1971, the Working Groups considered general methods and means for rendezvous and docking, radio and optical reference systems, communications systems, life support and crew transfer systems, and docking assemblies. They also agreed to study the technical and economic implications of experimental space flights which might test the technical requirements being developed.

At the Moscow meeting the Working Groups expected to dispose of many of the remaining technical problems and make recommendations to NASA and the Academy of Sciences regarding a single set of requirements for compatible rendezvous and docking. Progress is expected also on the definition of a possible joint flight mission which might test compatible systems.

ASTROGRAM Room 134
Admin. Mgt. Building
Phone 2385

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor Dot Evans
Reporters NASA Employees

Deadline for contributions:
Thursday between publication dates

CONNECT Needs Volunteers

Who do people call when they must cope with a crisis, need legal or medical aid or are just plain lonely? Since May over 2000 people in the Bay Area have called CONNECT.

Located in Palo Alto CONNECT is an information, referral and crisis intervention phone service which serves people from North Santa Clara County to the southern end of San Mateo County.

The agency's phones are answered by volunteer listeners who have been trained in the art of empathetic listening. Their trainer is Dr. Jerry Piaget of County Mental Health.

As with most volunteer organizations, CONNECT is able to keep only half their trainees as steady workers. Some people find the work not for them, some go back to school or just get too busy. Therefore, the continual selecting and training of listeners is a necessity.

CONNECT is therefore seeking volunteers to man phone lines three or more hours a week. There are two volunteers on each shift, with five shifts per day. The service is open from 2 p.m. to midnight seven days per week.

Volunteers are given 20 hours of group instruction and practice in various communication techniques, phone line procedure, and community resource information, followed by onemonthof supervision on the line.

For information call 328-4357.

Ames on TV "Bold Ones" Jan. 23

The TV show featuring Ames personnel and the Five-Degree-of-Freedom Motion Simulator in "The Flight to a Distant Star" on the "Bold Ones" series, is scheduled to be aired on January 10, 1972 at 10 p.m. on KRON-TV, Channel 4.

Based on an actual medical case, the story revolves around a shooting victim with a bullet fragment lodged in his brain whose doctors turned to Ames for help three years ago. Beside the TV stars John Saxton and David Hartman, the cast also includes three Ames players Gary D. Nolt and Joseph Quartuccio Jr. from the Simulator Systems Operation Branch, and Kermit R. Skrettingland, Medical Services Branch, all reenacting the real life drama in which they participated.

NASA European Tour

The NASA Employees Club is sponsoring the NASA 1972 European Trip scheduled for May 28 to June 18, departing from Dulles Airport, Wash., D.C. and returning to Wash., via Paris.

One tour will be a "Grand Tour" through England, Holland, West Germany, Switzerland, Austria, Italy, Monaco and France. The other tour will be an "Iberian Tour" - England, Portugal, Spain, Morocco, and also France. Detailed tour information is available by writing Bernard Maggin, Tour Coordinator, NASA Headquarters, Code RG.



LOOKING FORWARD . . . to time for his several hobbies is Howard H. Frazee (right), former Assistant Chief of the RFEE Branch, pictured here at a retirement party in his honor as he and his wife, Helen (left), discussed their future plans with Angelo Giovannetti, Chief of the Research Facilities and Instrumentation Division. One of Howard's favorite pastimes is photography, and farewell gifts of photographic equipment from his Ames friends should add to his skill. Another hobby is antique automobiles; finding and restoring these illusive relics can lead to many interesting areas and is an important contribution to the future as well.

A 30-year career employee, Mr. Frazee came to Ames following his graduation from U.C. Berkeley in 1941, and except for a two-year tour of duty with the U.S. Navy during World War II he has worked here at the Center as an electrical engineering supervisor.

How Smog Alert Works

When pollutant concentrations in the air anywhere in the Bay Area reach, or are expected to reach, levels that the Bay Area Air Pollution Control District has established as adverse, and these concentrations are likely to persist for 12 hours or more, the District declares that a Smog Alert is in effect.

Radio and television stations and newspapers will spread the word and everyone in the Bay Area can respond with actions to reduce the output of pollutants. These include:

- Reduction of emissions from Bay Area industrial and business plants.

- Postponement of any non-essential automobile trips, the activation of car pools and utilization of public transit facilities - trains and buses.

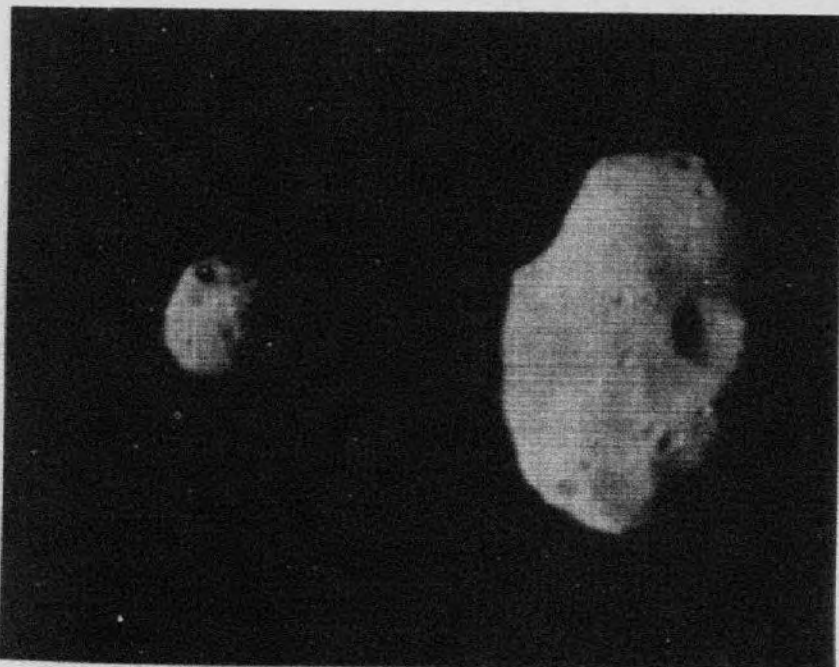
- The elimination of all open burning, including outdoor barbecues.

When pollutant concentrations are reduced and weather stagnation is broken, the Alert will be cancelled.

Ground Rules for PR Review With R&QA

The ground rules for reviewing purchase requests (PRs) which may have possible Reliability and Quality Assurance (R & QA) requirements are outlined in AMM 5150-3, "Review of Purchase Requests for R & QA Requirements." This action is often forgotten and as a result, time is lost when the PR is sent directly to Procurement Control and must be rerouted to R & QA for processing, then back to Procurement for final action. The delay could be one or two days.

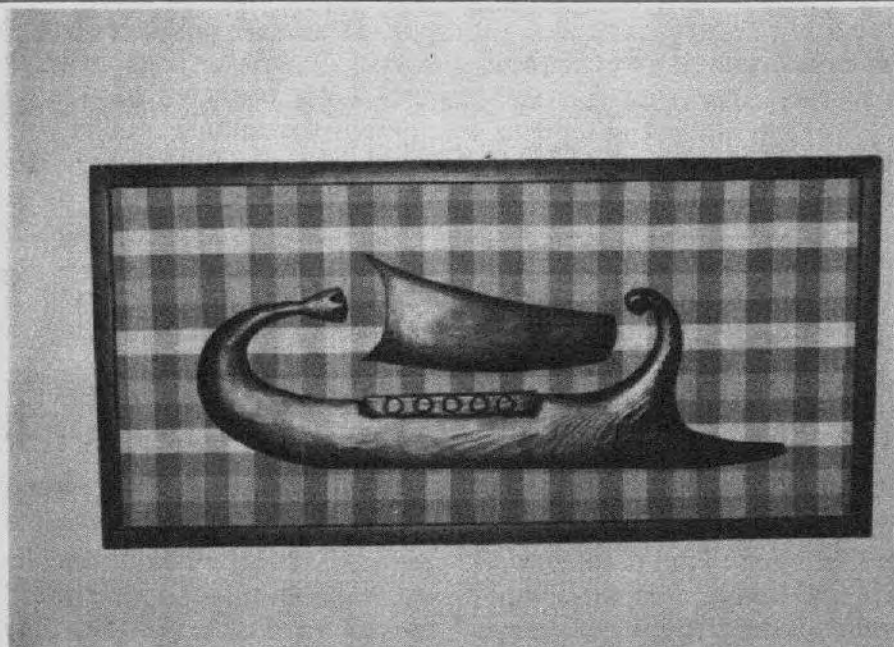
When a procurement is being prepared which may require R & QA review it is recommended that initiator contact the R & QA Branch early in the preparation so simultaneous action can take place. If this is not possible, the next approach is to send the completed PR directly to the R & QA Branch for review. It will be processed by that office and sent directly to Procurement Control. This will reduce the mail cycle time and also cut down the work load in PCU.



MARINER 9 PHOTOGRAPHS PHOBOS . . . Man's first close-up views of the inner Martian satellite Phobos were taken on November 29 (left) and November 30. The dark spot at top on the left image and at center on the right is a crater about 4.2 miles across. Phobos itself is about 14 by 10 miles. The uncertainty in length is due to the moon's irregular shape and large fraction in darkness in these views. The picture at left was taken during Mariner 9's 31st orbit of Mars.



NEW BOARD MEMBER . . . Loretta Vice, Technical Information, was recently made a member of the Ames Recreation Association (ARA) Executive Board. Mrs. Vice expressed enthusiasm about her new position, saying "I think it will be interesting, and fun too." She was elected as an alternate in an ARA election earlier this year, and now replaces Albert Puccinelli, Simulator Systems Operations, who has been unable to serve.



WOODCARVINGS . . . on exhibit in the Ames Main Library through January 20 are the work of a true artisan and have been enthusiastically received by Ames viewers. The finely carved viking ship shown in this photograph is one of the ten pieces in the collection now on display at the Center.

BASKETBALL

The Ames Industrial Basketball team won its first game Monday night at Los Altos High School. The team beat MMF by a score of 42 to 41. Roger Hedlund and the team's new center, Phil Wilcox, were outstanding. Reuben Martell led the team scoring with 13 points.

The next two games will be played on Dec. 6 at 9 p.m. and Dec. 13 at 7 p.m.

SKI CLUB

The Ames Ski Club has invited Dave Barnes, Manager of Freeman's Sport Center in Sunnyvale, to give a talk on "Advantages of Metal and Fiberglass Skis, Bindings, Boots and Other Equipment." Mr. Barnes will speak in the Ames Cafeteria on Wednesday, December 15, at 4:30 p.m. A film, "Mod Mgie on Skis" will also be shown.

All Ames Ski Club members are invited to attend and refreshments will be available at a nominal price.

WANT ADS

The Astrogram's ad section is provided as a personal, non-commercial service to Ames employees. Advertiser must be identified by name, extension and organization. The name may be left out of the ad but is needed for records. Ads must be submitted in writing to The Astrogram, N 241-4, by Thursday, a week before publication. The advertiser's home telephone number must be provided as a point of contact except in carpool notices.

AUTOMOBILES

For Sale-1971 Subaru FF1, 2 dr sedan, front wheel drive, radio, turns 38 mpg, excellent condition, available mid-December, \$1200. 964-7773.

For Sale-1959 VW Convertible body in good shape, maked excellent dunebuggy, no engine. \$150 or best offer. Call Gobets, 739-2787.

For Sale-1971 VW type 3, like new. Owner leaving Calif. 968-0342.

For Sale-1965 VW Bug. Very good condition, radio heater, new tires. \$655. Call 296-7643.

For Sale-1968 Chrysler Newport, 2-dr., vinyl roof, PS, PB, AT, AC, radio/heater, new trailer hitch, 41,000 miles, one owner, \$225 under blue book, Moffett Credit Union will go \$1,620. Sale price: \$1,800, avail. Dec. 15. J.R. Derr, Security. Home 294-2682.

For Sale-1962 Pontiac Bonneville, excellent cond., air conditioning, auto. trans., power steering, power brakes, good tires. \$475. 961-7864.

For Sale-1964 Honda motorbike, SS90, good condition. \$75. Call 969-3328.

For Sale-1967 Chevelle "400", 6 cylinder, excellent cond. Automatic transmission, radio, heater, new tires and brakes. \$850. Call 793-0722.

For Sale-1968 VW sedan, minimum miles, maximum care. \$1150. Phone 252-7017.

For Sale-1963 Ford Galaxie 500 XL, 2-dr hard-top, 44,000 original miles, new battery, new brakes and new transmission seals. 352 cu. in., 2 bl. carb. Tan with white top. 259-5597 after 5 p.m.

For Sale-1968 Chev. pick-up. 8 ft. bed, V8 with 3-speed on column. 259-5597 after 5 p.m.

For Sale-VW 560. 15 recap tire, never used, \$6.50. 257-0583.

HOUSING

For Rent-Cabin, Tahoe South Shore. Rent by week or weekend. Call E.A. Harris, 948-6200.

Rental-Ski group needs extra members for 4-month cabin lease. Convenient location just off hwy. 28 near Tahoe City. For inform. call 961-7157.

For Rent-Cabin in the Donner Pass area. Snug, warm, and cheerful. Many electric appliances. Circular fireplace and lots of wood. Dependable electric heating. Close to major ski resorts. Ideal for snow play and cross country skiing. Leo Poppoff, 323-2375.

MISCELLANEOUS

For Sale-General Electric B/W portable TV. Available mid-December, \$35; folding bed with mattress, \$5. 964-7773.

For Sale-4-month old tri-colored registered collie puppy. All puppy shots given. Owner moving to apartment. Must sell \$75. Call 247-6045 after 6 p.m.

For Sale-Canaries, guaranteed singers. Females also available. 739-6054.

For Sale-Mamiya/Sekor Super deluxe with viulitar 151 strobe. Don Madden, home 245-1833.

For Sale-8-week old Doberman puppies. Purebred, but no papers. \$50. 328-1675.

RIDE WANTED-For day shift to and from Tully Road and Bayshore, San Jose. Please call Rich Alexander, ext. 2415 or home phone 275-1514.

For Sale-Pool Table, excellent condition, \$225. Call 257-5686. After 5 p.m.

For Sale-(5) 15 gallon aquariums. Complete with gravel, filter, light and hood. \$20 each. 295-4938.

For Sale-Carpet, Herculan, beige with pad, 12' x 18'. \$85, exc. cond., call 253-5445 evenings.

For Sale-Child's large wonder horse, excellent condition, \$15. Pearl-Wiek toy chest, \$10, stroller \$10. Phone 379-7304.

For Sale-Men's 3-speed bicycle. Runs well, \$10. 968-0342.

For Sale-Tire chains, 6.50-13 to 5.60-15, \$5. Walnut coffee table plus two end tables, set \$20. Size 9 1/2 Henke lace ski boots (like new) \$10. Hand mower, \$5. L. Cortiss 941-2784.

GOLF

. . . by Kay Bruck

The annual November Ames Golf Club Award Dinner and installation of 1972 officers was held at the Lookout Inn (Sunnyvale Golf Course). Clark White again was Master of Ceremonies, passing out trophies to award winners and passing out condolences to the others who just showed up for a good time. There were a number of Arnie trophies given out (for duffers with dubious honors). Pictures of the bonafide trophy winners are being printed in the Astrogram in future issues.

The 1972 officers of the Ames Golf Club are: John Mulkern, President; Larry Hochstein, Vice President; Clark White, Treasurer; Frank Lazzeroni, Handicap Chairman; and Kay Bruck, Secretary. Don Dust, retiring president, made some remarks and passed out the trophies to the winners.

On-the-Job Injuries

Employees are reminded that in the event of an on-the-job injury it is necessary to use the Ames Health Unit, or designated doctors, to obtain payment of costs by the government.

Treatment obtained from private physicians because of a personal preference is not payable by the government. In an emergency situation, however, any doctor may be used. If an employee is injured on the job it is to be reported to the supervisor on combined Form CA-1 and CA-2. Report all injuries immediately, no matter how slight they may appear at the time. Slight injuries may develop into compensable cases at a later date.

For Sale-Cosco Deluxe play pen, \$12. Pride car bed, \$7.50. Both in excellent condition. Call 378-5704.

For Sale-Attractive upright piano, reconditioned, excellent tone. \$250. AR turntable and arm, like new \$40. 738-2948.

For Sale-1970 Yamaha DT1-C 250cc under 2000 mi., 460 x 18 knobby rear tire, modified front & rear shocks, 13T, 14T, 16T counter sprockets, 44T, 52T, 58T rear sprockets, hi-compression head, rack and other dirt extras. New \$1100, Want \$600 or Sherpa-T trade. Call H. Tom, 493-1798.

For Sale-Poodle Puppies, female, ready for Christmas. Phone 743-2804, after 5 p.m.

For Sale-Heathkit AA-14 stereo amp. \$95, good condition; walnut cabinet, performance certified by Heathkit Electronic Center. Must sell, need money, 351-5593.

For Sale-Small min. silver poodles, 8-weeks, AKC. 2 female, ideal for Xmas. Phone 252-2776, George E. Brown.

Attention-Rhododendron Enthusiasts! Anyone interested in obtaining a variety of new plants for spring planting please contact Bob George, 257-4110.

For Sale-Remodeling kitchen, have excess used 4 element electric drop-in range top, electric oven, built in, and range hood all in perfect operating condition. Make offer, 257-4110.

For Sale-Crib, porta crib, other baby furniture, phone 252-7369, Howard Goldstein.

The Astrogram

Volume XIV No. 5 NASA/Ames Research Center, Moffett Field, California December 23, 1971

Director's Christmas Message

It is a pleasure to wish all of you and your loved ones a most joyous holiday season and a very happy New Year. The past year has been marked by difficulties as well as by significant achievements and it is my hope that the new year will provide us with opportunities to seek new knowledge and to apply it to improve the quality of life for all people.

Hans Mark

Director

Mathews to Head Applications Office

A new Office of Applications has been established within NASA by Administrator James C. Fletcher.

Charles W. Mathews was named Associate Administrator for Applications and Leonard Jaffe was named Deputy Associate Administrator for Applications.

The personnel, programs and functions of the Earth Observations and Communications Programs Divisions will be transferred to the new office from the Office of Space Science and Applications. That office, directed by Dr. John E. Naugle, will be renamed the Office of Space Science and Applications. That office, directed by Dr. John E. Naugle, will be renamed the Office of Space Science.

Dr. Fletcher said, "The application of space technology to solving problems here on Earth is perhaps NASA's most important new thrust. I believe it appropriate to centralize into a single office in NASA Headquarters all of the resources which we can muster to support space applications to Earth."

Mathews has been Deputy Associate Administrator for Manned Space Flight since 1968. Prior to that he was Director of the Apollo Applications Program.

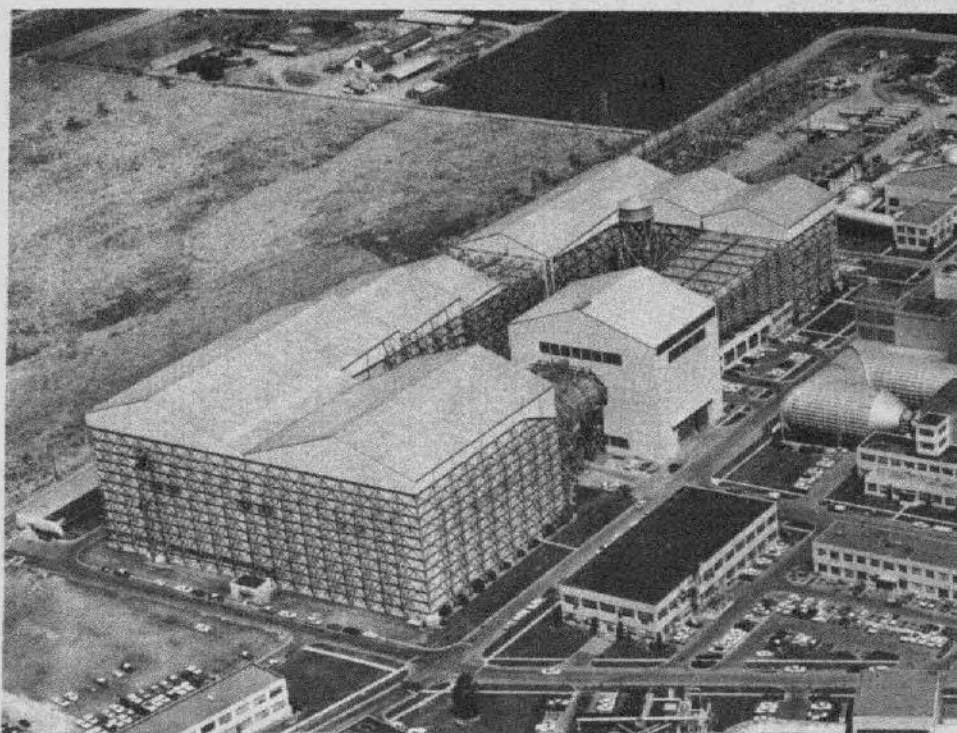
He joined NASA's Langley Research Center in 1943 specializing in aircraft flight research. He conducted early studies on reentry of orbital manned spacecraft, joining Project Mercury in 1958.

Jaffe has been Deputy Associate Administrator for Space Science and Applications (Applications) since 1966.

He joined the Lewis Research Center in 1948 specializing in automatic data reduction for wind tunnel research. He came to NASA Headquarters as Chief of the Communications Satellite Program in 1959 and became Director of Communication and Navigation Programs in 1966.

Holidays, 1972

New Year's Day, Jan. 1, Washington's Birthday, Third Monday in May. Independence Day, July 4. Labor Day, first day in September. Columbus Day, second Monday in October. Veterans Day, fourth Monday in October. Veterans Day, fourth Monday in October. Thanksgiving Day, fourth Thursday in November. Christmas Day, December 25.



FAMILIAR LANDMARK . . . Aerial view of the 40- by 80-Foot Wind Tunnel at Ames which is scheduled for remodeling. Built in 1944 as a large scale aeronautical research facility, it is the largest wind tunnel in the United States and has been in continuous use for developing and improving nearly every military and commercial aircraft produced in the U.S. since World War II. Plans call for a \$6.5 million improvement and modernization project to begin in the spring of 1972.

Ames Facilities Modernized

Improvement projects totaling \$9.5 million are planned for two major research facilities at Ames. The projects will increase the dimension of the Center's role in the development of high priority aircraft and space vehicles slated for use in the future.

Work is scheduled to begin before March 1972 on \$6.5 million modernization of the 27-year-old 40-by 80-Foot Wind Tunnel to increase operational safety, efficiency, and its ability to accommodate the increasing demand for low-speed, large-scale testing of advanced Short Take-Off and Landing (STOL) aircraft and Vertical Take-Off and Landing (VTOL) aircraft now under study. Such aircraft are being developed to provide quiet, easily accessible air transportation for urban areas.

The 40- by 80-Foot Wind Tunnel is the United States' largest flight test facility. It has been in continuous use since 1944, testing nearly every military and commercial aircraft developed in the United States to predict and improve their aerodynamic characteristics.

The second project for \$3 million is to upgrade the capacity of a high-temperature arc-jet wind tunnel for simulating re-entry heating conditions of the space shuttle vehicle, now scheduled for manned flight in 1978 as part of the Space Transportation System.

The converted facility formerly named the Arc-Heated Planetary

Gas Facility, will be renamed the Interaction-Heating Shuttle Panel Test Facility. The available electric-arc power, used to heat the test gas, will be increased from 20 megawatts to about 60 megawatts so it can simulate the entry conditions experienced by the Shuttle Vehicle at the correct scale. The new facility will be located in one of the Center bays in Building N 238, and the new power conversion equipment will be located in a new substation to the west of the building.

Don't Be A Victim

The holiday season offers a lucrative field of operation for the thief who specializes in ladies' handbags and purses. Most offices at Ames will be under manned due to annual leave schedules; and some employees will have extra money with them for Christmas shopping.

This is a time to be especially conscious concerning security of personal property. All personnel are cautioned that it is their responsibility to provide for the safekeeping of their money, jewelry, portable radios and the like, to avoid these unfortunate disappearances.

Don't have an unhappy Christmas because of carelessness. Be alert, protect your property and have a happy holiday season.

Contracts Let For QUESTOL Design

Three airframe companies were recently selected by NASA for negotiation of separate \$1.5 million, six month contracts for the design phase of the QUESTOL (quiet experimental STOL) Program for which Ames Research Center has project responsibility.

It is intended that one of the design phase contractors will be chosen for the subsequent fabrication phase which will provide two experimental transport-type airplanes for a NASA flight research program.

The Douglas Aircraft Co., Long Beach, Calif. (a division of McDonnell-Douglas Corp.); Grumman Aerospace Corp., Bethpage, N.Y., Marietta, Ga. (a division of Lockheed Aircraft Corp.) were selected as design phase contractors. Several major aerospace companies are aligned with these contractors in subcontracting roles.

Objective of the QUESTOL Program is to provide the propulsive-lift technology required for development of quiet, short-takeoff-and-landing (STOL) transport aircraft. The use of turbofan engine systems to augment aerodynamic lift is a key to community noise reduction, airport congestion relief, and improvements in short-haul transportation and tactical airlift capability.

The QUESTOL Program is managed by the Office of Advanced Research and Technology.

Christmas Greetings

"Greetings from a long ways away", is the opening sentence in a note from Ames research scientist Donald E. Gault who is spending a year of study as a Guggenheim Scholar at the Max-Planck Institute for Nuclear Physics at Heidelberg, Germany. Don may return to the Center on a business trip shortly after the first of the new year - - but in the meantime he and his family send best wishes for the holidays to all their friends at Ames.

astrogram Room 134
Admin. Mgt. Building
Phone 2385

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor Dot Evans
Reporters NASA Employees

Deadline for contributions:
Thursday between publication dates

Space Shuttle Conference at Ames

Aerodynamic technology for a manned spacecraft which will fly to an airplane-like landing was the subject of a two-day working conference held at Ames December 15 and 16.

Some 150 representatives from Government and industry attended the Space Shuttle Aerothermodynamics Technology Conference, where more than 30 papers were presented on space shuttle design covering aerodynamics, operation flight mechanics, flow fields and heat transfer.

Dr. Hans Mark, Ames Director, opened the conference and welcomed the attendees to the Center. The status of the shuttle program was outlined by Edward P. Andrews, Office of Manned Space Flight, NASA Headquarters; and introductory remarks on shuttle technology were presented by A.O. Tishler, Office of Advanced Research and Technology, NASA Headquarters. Working Group Chairman Arthur Henderson of Langley, discussed Aerothermodynamics Technology.

General Chairman for the meeting was Glen Goodwin, Ames Director of Astronautics; C. Robert Nysmith of the Thermo and Gas-Dynamics Division was Administrative Chairman; Elliott D. Katzen, Technical Assistant to the Director of Astronautics, was Technical Chairman; and Session Chairmen were Joseph G. Marvin, Fluid Mechanics Branch; James C. Dunavant, and Beverly Z. Henry from Research Center; and Victor L. Peterson, Aerodynamics Branch.



Children's Christmas Party A Merry Affair

Ames said Merry Christmas to the children Saturday, December 11. The sons and daughters of Ames employees and 120 under-privileged kindergarteners were the honored guests at the Annual Ames Children's Christmas Party.

Mr. and Mrs. Santa Claus, Lou Polaski, Flight Equipment Analysis, Darlene Moen, Director of Astronautics, arrived in the morning in a 1909 Model F Buick with two cylinder chain drive. (Ralph Igler, Research Facilities Engineering, drives the car when Mr. and Mrs. Santa Claus aren't driving it.) In the afternoon Bob Carlson, Programming, was Santa.

The children were treated to candy canes, cookies, balloons, a marionette show, music and presents.

Six of the big kids received presents, too. Barbara Allen, Computer Operations, was given a trip to Hawaii for two; O.B. Ray, Facilities Services, received a color television set; Dave Koenig, Large Scale Aerodynamics, got a bicycle; Fran Valero, Physics Branch, was given a set of golf clubs; Ron Denison, Simulation Experiments, received a barbecue, and Greighton Sencenbaugh, Planning Office, got a radio.

It would be extremely difficult to say "thanks" to every person

who helped make the party such a success. However, there are a few, without whom, the party would not have taken place. Sal Tardio and Jan Konrath are especially congratulated on a job well-done.

Chairman Sal Tardio wanted to personally thank those who helped; "THANK YOU"

"I wish to thank each Chairman and Co-Chairman of the various committees in the gift shops and refreshment areas and also all the Santa's Helpers who were gracious to come in and give their time for the Ames Annual Children's Christmas Party.

"It would be impossible to print the names of each individual helper, but we do extend a very hearty 'Thank You' to everyone who helped in making the party successful. I would like to add a special thanks to those who worked long and hard getting the party planned and coordinated. These people are: Fred Baker, Co-Chairman, Jan Konrath, Coordinator, Kenneth C. (Clark) White, Master of Ceremonies; Carol Starkenburg, Secretary; Guy Ferry and his clowns, and our fellow employees who made terrific tinkerbells and especially Lou Polaski, Bob Carlson and Darlene Moen who were Mr. and Mrs. Santa Claus. My special compliments and sincere

thanks to a man named Johnny Diaz who did a magnificent job keeping the refreshment areas supplied, and to Jo Hartke for her great sketches.

"I might add, the party was a BIG SUCCESS.

Sincerely,

Sal Tardio"

Traffic and parking was well handled by members of Explorer Scout Troop #499. Many thanks.

Entertainment was provided in the finest tradition, by Ed Kelley and his Marionettes, and by The Family Tree. Mr. Kelley, assisted by Louis Rondoni, kept the children awed with his clever variety of marionettes. Mr. Kelley handmade each of the marionettes, and has been entertaining with them for several years as a hobby.

The Family Tree, a professional group, provided great musical entertainment. Music was also provided, in a more traditional way, by the Ames Choral Group. The group, under the able direction of Bill Houck, sang a selection of Christmas favorites.

Judy Long, Sally Belden, and Kay Presten, all of the Reliability and Quality Assurance Branch, were responsible for the excellent job of decorating Jeanette Remington. of Employment, is also to be thanked for coordinating the refreshments.



BON VOYAGE . . . and congratulations were extended to Barbara Compton (left), Computer Operations Branch, by Sal Tardio (right), chairman of the Children's Christmas Party, as winner of the trip to Hawaii -- one she plans to take, too.

Ames Airings

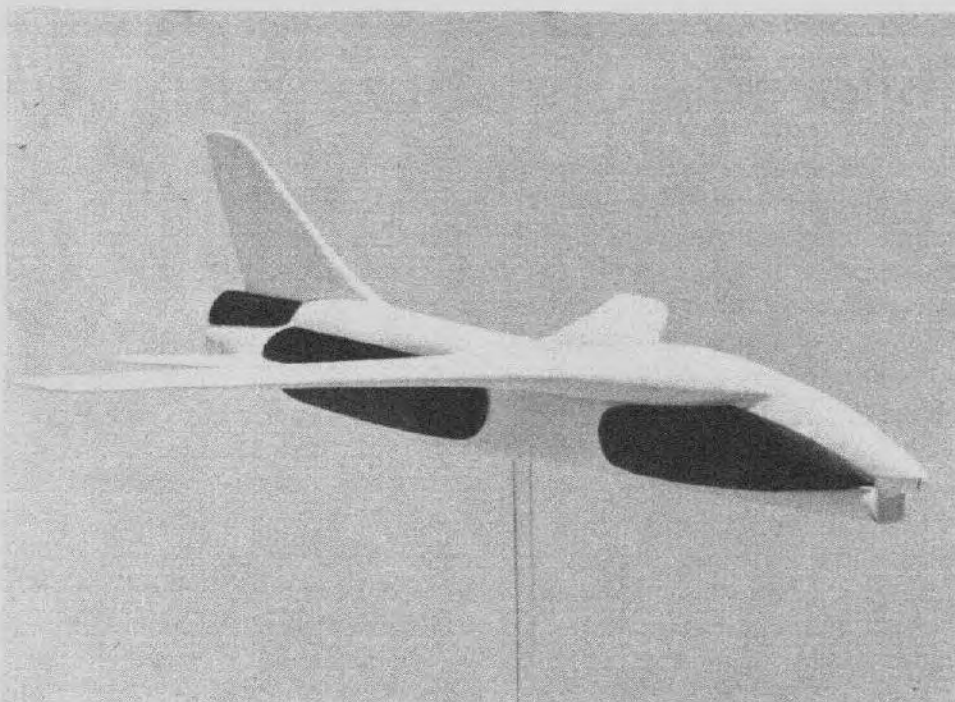
... by Jeanne Richardson

As you probably know, Santa came to the Ames Children's Christmas Party. What you probably didn't know is that after the party he asked a few of the big kids, those who have been good, what they wanted for Christmas. He got some interesting answers and he let me see them. (He and I have been close for a long time.) Since this is the season for sharing, I thought I'd let you see what I saw:

MITCH RADOVICH, RSM, "A set of woods"; AL HERTZOG, AB, "A mind-reading machine"; JAMES SOHLER, FAOE, "An enjoyable trip to Maui to visit my daughter"; HANS MARK, D, "A pillow and a blanket, so I can sleep on the red-eye flight to Washington"; EMMA CUSHMAN, LX, "A white mink coat"; BETTY THOMSEN, APX, "I'd like to visit Austria again"; CHARLES HALL, PA, "A successful Pioneer launch"; TOM GAMBUCCL, RSM, "A million dollars for a nice retirement"; GERRY HALL, "Good Health"; CALVIN H. EDDLEMAN, RFS, "A horse that can run six furlongs in 1.09 flat"; GLEN GOODWIN, S, "I know what I want, but I don't know how they'll wrap it"; NOEL DELANY, RKO, "Snow"; LEE JONES, RFP, "I'd like to take my family to the University of Beirut to see my granddaughter"; LOUIE RONDONI, RSM, "30 years of retirement"; IRENE THARPE, A, "A girl friend for my dog Fritz"; RONALD GERDES, FSO, "Happy landings for the next year"; CAROL TINLING, ATM, "A whole bunch of rechargeable elves"; BOB PIKE, DD, "For the work on the Administration building to be finished, and the heat back on, on a regular basis"; BRUCE CASTLE, LTb, "A red aluminum canoe"; K. DALE BONHAM, RSS, "A Lawrence fish locator"; BOB NYSMITH, ST, "A vacation"; STANLEY MILLER, DI, "A 40-lb. fish on the end of my rod"; HARRY DE VOTO, ATG, "Well, I don't need a new bike, and my skates are still okay. There is one thing I'd hope for tho . . . that every decision we make has a grasp of the human consequences."; IRVING ISRAEL, AAP, "Edie Gorme"; G. ALLEN SMITH, FSC, "News from Mariner that there are canals on Mars"; GEORGE HOLDEN, FLE, "All my children home for Christmas (three of George's four children graduated from the University of California this year - Congratulations George et al.) EDIE WATSON, D, "A blonde



OUTSTANDING PERFORMANCE . . . for the past year has resulted in an Army Commendation Certificate for Stephen T. Mackin (left), shown here being congratulated by Karrell W. Reynolds (right), Chief of the Services and Supply Division. Mr. Mackin, a civilian employee with the Ames Directorate of the U.S. Army Mobility Research and Development Laboratory, is a shipping and receiving attendant in the Center's Supply Branch. The citation commending Mr. Mackin for significant achievements in his work area was read by Raymond H. Weisskopf, Chief of the Supply Branch, in the absence of Major Louis A. Berry, USA, who heads the Army's Ames Directorate.



TEST AIRCRAFT . . . Side fairings will be added to NASA's Supercritical Wing research aircraft under terms of a \$211,260 of the side fairings area ruling, an aerodynamic design feature that permits the aircraft to fly with greater efficiency. The Supercritical Wing is being flown at NASA's Flight Research Center to investigate the ability to reduce the operating costs of future jet transports. In addition, this modification will provide a more desirable test environment for evaluating the aerodynamic characteristics of the supercritical wing near the speed of sound.

wig"; HOLLIE FUNKHOUSER, PAF, "A new Dodge van camper"; BRAD EVANS, DT, "An old used, beat-up trumpet and mouth piece for nostalgic playing"; JOHNNY DIAZ, RFTM, "A new nylon jacket"; JANICE MC MILLAN, FSR, "A vacation"; JAMES DE WITT, RSC, "A .338 Browning Magnum Rifle"; ANN

BOGGIANO, RSM, "A housecoat"; PHIL WILCOX, SSO, "A new office"; VANCE OYAMA, LXD, "I want that set of golf clubs at the Christmas Party"; THE ASTROGRAM STAFF, APR, ; For all of you to have a beautiful Christmas and for Tony Quartuccio to be back at Ames with his broken arm mended.

WANT ADS

The Astrogram's ad section is provided as a personal, non-commercial service to Ames employees. Advertiser must be identified by name, extension and organization. The name may be left out of the ad but is needed for records. Ads must be submitted in writing to The Astrogram, N 241-4, by Thursday, a week before publication. The advertiser's home telephone number must be provided as a point of contact except in carpool notices.

AUTOMOBILES

For Sale-1961 Chevrolet Impala V-8 in mint condition. New battery, transmission, and 2 new tires. Runs well, looks good. \$310, call 591-2789.

For Sale-1964 Olds F-85 convertible, V-8, New tires. Excellent condition except for ding in front fender. \$350 (\$200 below Blue Book), Call 591-2789.

For Sale-1964 Series III Sunbeam Alpine. 60,000 miles. Hard top. \$700 or nearest offer, Call 964-8879, after 6 p.m.

For Sale-1969 650 Triumph-low mileage-\$900, Call Del 739-8763.

HOUSING

For Rent-Choiceest area in Cupertino, off Foothill Blvd. Deluxe 2-br. apt. with own private backyard, fireplace, laundry facilities. Easy access to 280 and 85. Rent \$215. 257-8202.

MISCELLANEOUS

For Sale-Boat trailer, 16-inch wheels, good rubber. \$40. Call B. Corridan, 867-4845.

For Sale-G.E. Mobil maid portable dishwasher, Copertone, 3-yrs. old, excellent condition. \$85. 321-0625.

For Sale-Heath kit AJ-33A, AM/FM, multiplex tuner and twin HK-40 Harman Karven speakers, perfect condition. Best offer, 365-3869, after 6.

For Sale-Maple desk, \$15. 6-drawer hardwood chest, \$8. Walnut record cabinet \$15. Bb Clarinet \$25. 323-7070.

For Sale-One ticket to Andres Segovia recital Feb. 2, 1972 at Flint Center. Tenth row, center. My cost \$6.50, your cost \$4. Doug Pearson, 967-2970.

For Sale-Schwinn Continental, 10-speed bike. Almost new, ex. cond., many extras, great Xmas buy. \$80. Ask for David, 257-0753.

For Sale-Very affectionate, jet black poodle puppies, excellent Xmas present. \$50. 591-4320.

Free-Ugly grey kitten. Call 961-4182.

For Sale-Jig saw, 20-inch throat; shopmaster model J-20; 10-inch x 12-inch table tilts to 45 degrees; key-lock switch; complete with motor, extra blades, mitre gage, and circle cutting attachment; like new condition; \$35. Phone 379-4305.

For Sale-10-speed bike, fair condition \$40. Call 244-2190.

For Sale-Three oriental rugs, two small Persian and one 9 x 12 Chinese. Gowdey, 739-9228.

For Sale-Pride car bed, \$7.50. Porta-crib with mattress and bumper, \$22. Both items in excellent condition. Call 378-5704.

For Sale-Sears Kenmore 700 Washer and Gas Dryer, like new. Wellbilt gas range. All copper-tone. Also wall to wall carpeting. \$400 for all. Call 591-4777.

For Sale-Mountain Property, 4000 ft. elevation. New road and pad for cabin. Close to beautiful Highway 88 above Jackson, Peddler Hill and Silver Basin Ski Resorts. One acre \$4000 or all 2-1/2 for \$9000. Call 732-9441 after 5:30 p.m.

For Sale-1967 Dodge Dart, 4-door sedan. Factory air, etc. Must sell-leaving state. 248-9538.

For Sale-Two tickets to the Rose Bowl Game, call 965-0936.

CORRECTION

The TV show featuring Ames personnel and the Five-Degree-of-Freedom Motion Simulator in "The Flight to a Distant Star" on the "Bold Ones" series, is scheduled to be aired on January 23, 1972 at 10 p.m. on KRON-TV, Channel 4.